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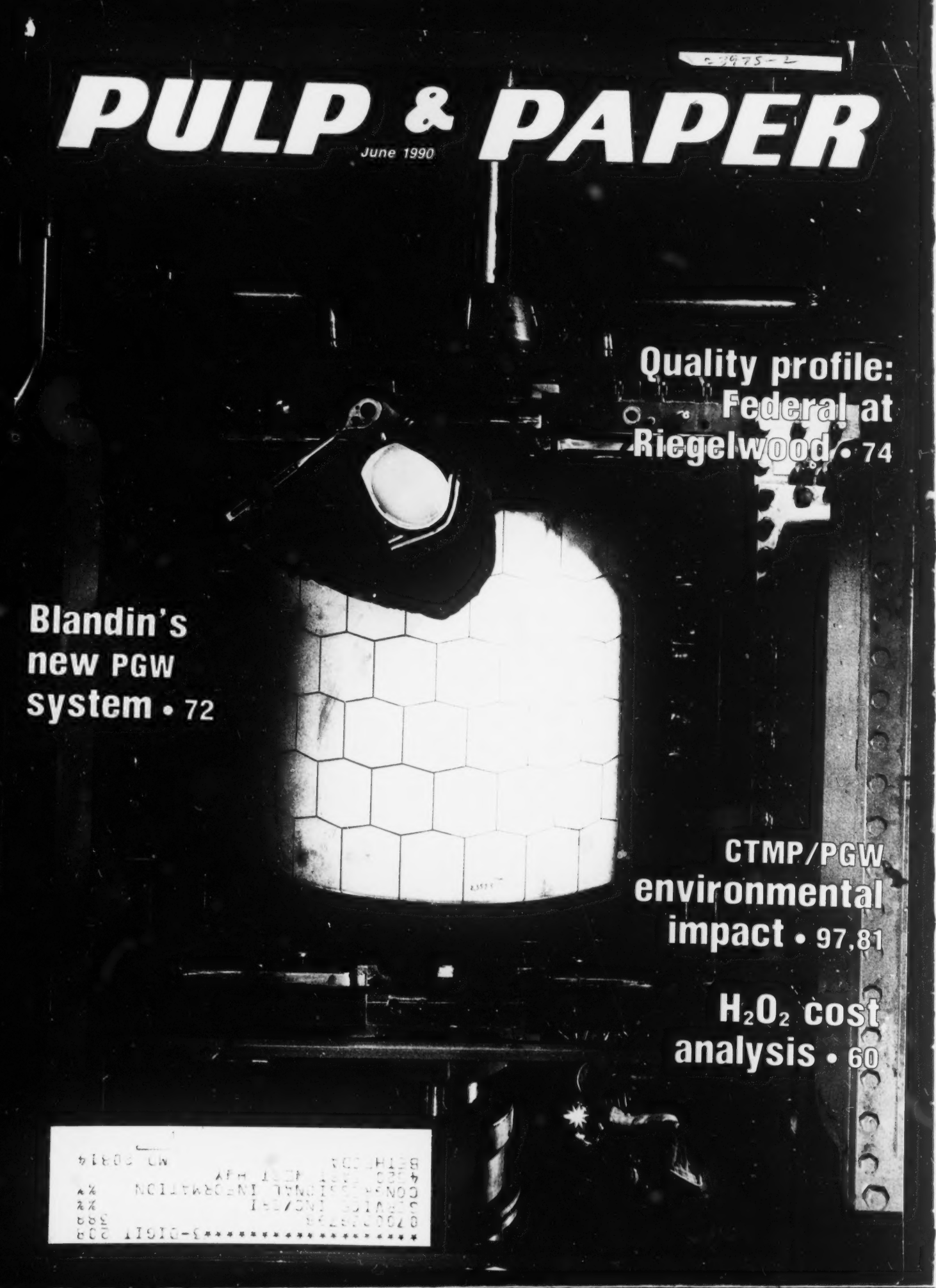
PULP & PAPER

June 1990



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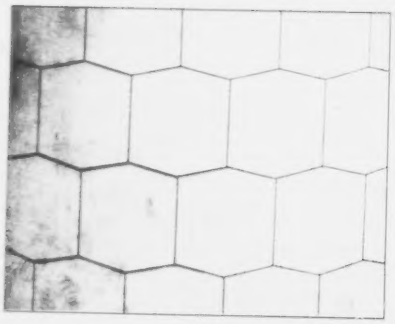

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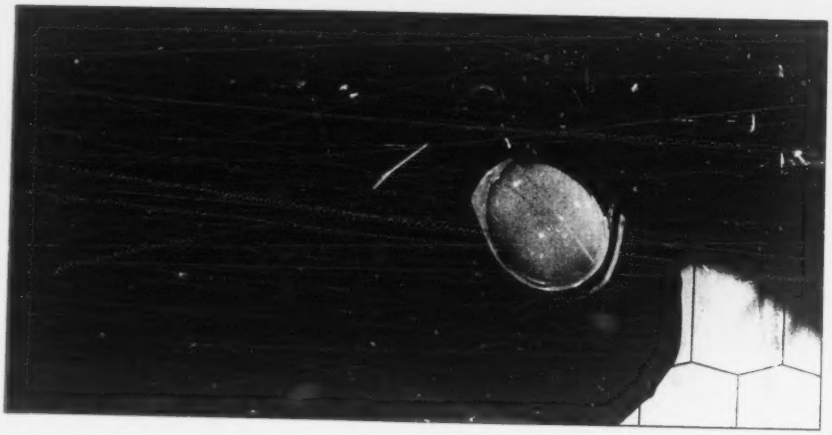

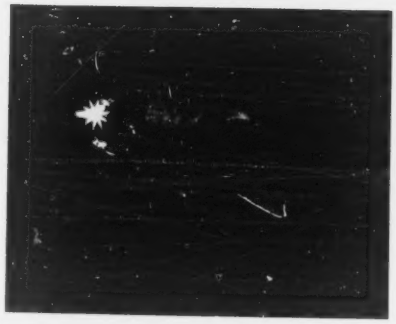

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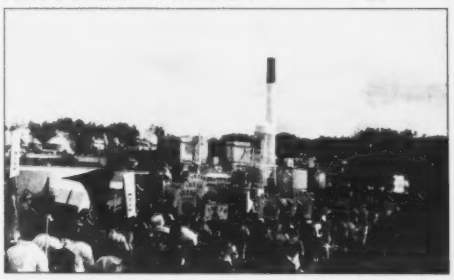

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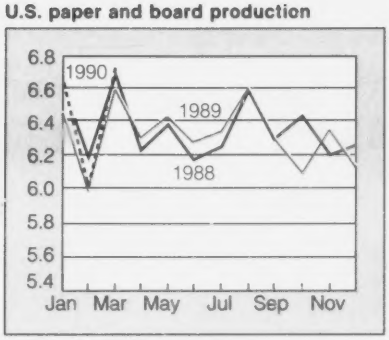
ABP

BPA

U.S. paper and board production



U.S. production of paper and paperboard totaled 6.7 million tons in March, an increase of 1.3% over the same month last year, according to American Paper Institute data. The seasonally adjusted rate of production in the first quarter was 77.7 million tpy, 1.4% higher than the year-earlier rate. Through March, mills produced paper at a seasonally adjusted rate of 39.2 million tpy, up 2.4%, and paperboard at 38.4 million tpy, up 0.3%.

Among major grades, newsprint was responsible for most of the gains in the paper sector, reflecting the recent startup of new capacity. Uncoated groundwood continued to lead the printing and writing grades, which overall were up 2.8% in the first quarter. A 7.8% increase in production of containerboard for export was barely enough to offset a 0.1% decline in production for the domestic market, leading to an overall gain of 0.5% through March. The situation is similar for boxboard, with export production up 11.7% but output for domestic use up just 0.8%.

Canadian newsprint shipments totaled 825,000 metric tons in March, up 2.7% from last year, but pulp shipments dropped 11.5%, to 690,000 tons. Operating rates were 95% at newsprint mills and 88% at market pulp mills. ■

	Latest month	(000 short tons)	% change from year ago	Annualized year-to-date (000 short tons)	% change from year ago
PAPER & PAPERBOARD PRODUCTION[1]					
Newsprint	Mar.	543	5.2	6,422	9.3
Uncoated groundwood (s)	Mar.	160	8.8	1,832	6.7
Coated paper (s)	Mar.	616	2.0	7,349	2.5
Uncoated free-sheet (s)	Mar.	1,008	0.5	11,734	2.4
Other printing/writing	Mar.	145	4.3	1,646	11.8
Total packaging and other paper (s)	Mar.	412	-5.5	4,826	-5.5
Tissue	Mar.	492	-2.2	5,669	0.9
Total paper	**Mar.**	**3,375**	**0.8**	**39,477**	**2.4**
Unbleached kraft paperboard	Mar.	1,714	3.6	19,747	2.0
Semichemical medium	Mar.	485	-3.6	5,619	-2.7
Bleached paperboard	Mar.	388	-1.0	4,510	1.2
Recycled paperboard	Mar.	765	3.4	8,775	-1.3
Total paperboard	**Mar.**	**3,352**	**1.9**	**38,651**	**0.5**
Total U.S. paper and paperboard output	**Mar.**	**6,727**	**1.3**	**78,128**	**1.4**
PULP, WASTEPAPER & FIBER[2]					
Total U.S. woodpulp production	Feb.	4,989	3.5	62,811	1.9
Market pulp production	Feb.	660	-3.9	8,579	-2.3
Wastepaper consumption at paper/board mills	Feb.	1,618	8.0	20,313	5.0
Pulpwood consumption (cords)	Feb.	8,108	3.5	99,966	2.9
CONVERTED PRODUCTS STATISTICS[3]					
Corrugated box shipments (billion ft²)	Mar.	26.667	-0.9	78.443[6]	0.8
Containerboard inventories at U.S. box plants and mills	Mar. 1	2,559	-2.0		
INTERNATIONAL TRADE[2]					
U.S. paper imports (including products)	Feb.	1,033	3.2	12,876	3.6
Imports of Canadian newsprint	Feb.	688	11.1	8,300[6]	5.7
U.S. paper exports (including products)	Feb.	499	-4.8	6,484	12.3
Exports of unbleached kraft linerboard	Feb.	186	-5.1	2,434	14.1
Exports of woodpulp	Feb.	410	-19.1	4,981	-13.9
Norscan pulp inventories[4]	Mar. 31	1,392	83.2		
Norscan pulp operating rates[4]	Mar.	85%	94%	96%	91%
CANADIAN STATISTICS[5] *(reported in metric tons)*					
Total newsprint shipments	Mar.	825	2.7	2,259[6]	-0.8
Operating rates	Mar.	95%	95%	94%	98%
Inventories held by U.S. consumers	Mar. 31	1,267	-11.2		
Other paper/board shipments	Mar.	647	9.3	1,813	6.8
Woodpulp shipments (export only)	Mar.	690	-11.5	1,914	-9.8
Operating rates	Mar.	88%	95%	90%	97%

1. American Paper Institute. 2. API, Bureau of Census, American Pulpwood Assn. 3. Fibre Box Assn., Paperboard Packaging Council. 4. North American/Scandinavian paper-grade market pulp. 5. Canadian Pulp & Paper Assn. 6. Not annualized. (s) = Shipments.

Recycled paperboard: Producers add capacity to meet rising demand for recycled packaging

Grade Structure: Recycled boxboard is made primarily from secondary fiber or wastepaper and is produced on either a fourdrinier, a multi-ply, or a cylinder paper machine. Grades include folding boxboard, corrugating medium, linerboard, gypsum liner, and core/can/tube stock.

Markets: The market demand for recycled paperboard grades, as measured by their 1990 capacity share, is folding boxboard, 26.3%; setup boxboard, 3.0%; corrugating medium, 21.9%; gypsum linerboard, 14.0%; linerboard, 5.6%; container chipboard and filler board, 0.4%; and core/can/tube stock and other converting grades, 28.8%.

Production/Capacity: Production declined 0.4% to 8.754 million short tons in 1989. Demand has been somewhat weak in early 1990 due to weakness in containerboard and gypsum liner grades. Total recycled boxboard production was down about 1.3% in the first three months of 1990 compared with a year earlier.

The projected increase in capacity for recycled paperboard for 1990-92 is more than double the increase during the past three years. Current producers, as well as new entrants into the industry, will add 1.193 million tons of capacity to the 1989 base of 9.612 million tons. Containerboard grades will account for 75%, or 944,000 tons, of the new capacity.

These major expansions will outpace demand growth this year and perhaps again next year. Therefore, total industry operating rates are expected to drop to about 85% of capacity. However, mills producing folding boxboard and other consumer packaging grades should enjoy much higher operating rates.

Outlook: Total demand for recycled paperboard continues to be depressed by the weakness in the containerboard and gypsum liner grades. In 1989, recycled linerboard production dropped 4.7%, corrugating medium dropped 1.8%, and gypsum liner dropped 7.9%. Some improvement in recycled containerboard demand is expected in second-half 1990, but prices are forecast to remain depressed. The weakness in gypsum liner grades is expected to continue, and little likelihood of a rebound in 1990 exists since new housing starts and commercial construction are both expected to remain depressed.

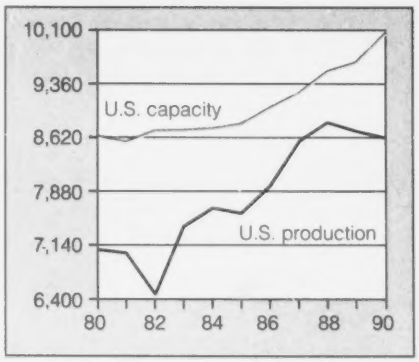
Production of recycled folding boxboard increased about 2.0% in 1989, and the industry fully utilized capacity to meet rising demand for recycled carton stock. Production reached 2.40 million tons last year and is forecast to reach 2.50 million tons this year. Higher demand for recycled boxboard has been fueled by the promotion of recycling and price competition with bleached and unbleached kraft boxboard grades.

Production of core/can/tube stock increased about 3.7%, or 50,000 tons, in 1989. Market growth will be flat this year due to weaker demand for the industrial converting grades and lower U.S. retail sales. The core/can/tube grades are used in a variety of consumer packaging applications in addition to their industrial uses.

Prices: Manufacturers successfully raised market prices for recycled boxboard grades in the first quarter, following a full year with no price increases. The benchmark price for clay-coated newsback (CCNB), which is widely used in folding cartons, increased $35/ton to between $515 and $545/ton. Prices of uncoated grades increased $25/ton to between $365 and $385/ton. Recycled boxboard prices will continue to be sharply lower than the $830/ton price of solid bleached sulfate or $620/ton for coated kraft.

Historical prices for clay-coated 20-pt folding carton boxboard (rolls, $/short ton, year-end prices): 1980, $380; 1981, $400/425; 1982, $380/425; 1983, $370/425; 1984, $375/425; 1985, $350/400; 1986, $380/420; 1987, $390/415; 1988, $480/$510; 1989, $480/$510. Bending 20-pt chipboard (rolls, $/short ton, year-end prices): 1980, $260/275; 1981, $270/280; 1982, $280; 1983, $280/300; 1984, $300; 1985, $300; 1986, $320; 1987, $320; 1988, $340/$360; 1989, $340/$360. ■

SUPPLY/DEMAND (000 tons)



FORECAST (000 tons)

U.S.	1988	1989	1990e
Production[1]	8,789	8,754	8,615
Capacity[1]	9,532	9,612	10,029
Utilization rate	92.2%	91.1%	85.9%
Imports	95	100	85
Exports	72	34	44
Apparent U.S. consumption	8,812	8,820	8,656
lb/capita	71.85	71.74	69.25
GNP ratio[2]	2.25	2.25	2.20

e = *Pulp & Paper* 1990 estimate.
1. American Paper Institute production, capacity data—1988, 1989 revised.
2. 000 tons/$ billion real GNP.

TOP U.S. PRODUCERS (000 tpy)

	Annual capacity (000 short tpy)	Market share (%)
1. Jefferson Smurfit Corp.	1,330	13.3
2. The Newark Group Inc.[1]	875	8.7
3. Sonoco Products Co.	850	8.5
4. Caraustar Industries Inc.	550	5.5
5. Rock-Tenn Co.	532	5.3
6. Inland Container Corp.	475	4.7
7. Waldorf Corp.	395	3.9
8. U.S. Gypsum	332	3.3
9. National Gypsum Co.	220	2.2
10. Packaging Corp.	210	2.1

Market share of top five companies:
38.0%
Market share of top ten companies:
57.5%
Total U.S. capacity (1990):
10.029 million short tons

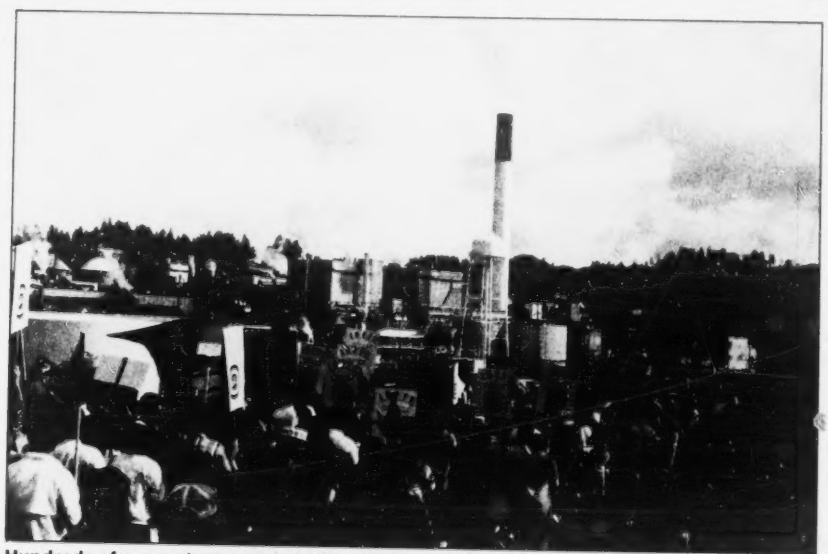
1. Acquired National Gypsum's Stockton, Calif., mill in 1989.

it argued were necessary for the future competitiveness of the mill. No sale negotiations were going on as of mid-May, but Odgers added that it was "in the interest of both parties if it is sold as an operating facility."

"I think the wage increase should have been higher," said AWPPW Oregon representative James P. Thompson, "but we got them off their takeaways." Thompson commented that Toledo workers were pleased about G-P's plans to sell the mill. "The people there really are bitter against the company," he said. Although workers were expected to return to the mill May 9, most employees were staying off the job for perhaps another week. The new contract includes job protection and successor language, and the new owner of the facility will be obligated to accept the labor force, he said.

Meanwhile, members of four trade unions at G-P's pulp and paper mill in Baileyville, Maine, approved a four-year pact last month after three years of negotiations. More than 220 carpenters, machinists, and aerospace and electrical workers had been under implemented terms since August.

• Members of AWPPW rejected a five-year contract offer at five Weyerhaeuser Co. paper mills in Washington and Oregon by a vote of 846 to 644. Union negotiators referred the offer without a recommendation, and terms of the proposal were not disclosed. The current three-year pact expired Mar. 15 and was to be extended, Weyco officials said. The company was seeking a pact two years longer than usual to extend stability at the mills, located in Everett, Cosmopolis, and Longview, Wash., and Springfield and North Bend, Ore. Both sides were scheduled to meet in mid-May. ■



Hundreds of supporters parade before the Georgia-Pacific mill Apr. 21 in Toledo, Ore. (Photo courtesy of *The Rebel*.)

SALES AND EARNINGS

Profits drop 22% in U.S., plummet 69% in Canada

North American paper industry earnings continued to spiral downward as U.S. and Canadian producers suffered from prolonged weak newsprint and market pulp markets and eroding containerboard and corrugated box prices. A *Pulp & Paper* survey of first-quarter 1990 profits of 30 U.S. companies showed a 22.5% drop from year-earlier earnings, while 16 Canadian companies reported an overall 69.0% plunge. U.S. sales for the quarter ending Mar. 31 improved 7.0%, but Canadian sales stagnated, increasing a scant 0.5%. The latest figures had many CEOs shaking their heads and wondering aloud when the down cycle would end.

As the newsprint market seemed finally to bottom out, with hopes increasing that a June 1 price increase would stick, other markets weakened, namely market pulp and paperboard packaging. The bright spot remained tissue grades, where at least two major producers were able to increase overall company profits. Higher prices for timber and wood products also helped bolster profits of some U.S. companies with operations in the Pacific Northwest. But overall, only a half dozen U.S. paper companies and one Canadian company were able to post higher profits in the first quarter. The industry's after-tax profit margins on a year-to-year basis narrowed to 5.3% from 7.4% in the U.S. and to 2.1% from 6.9% in Canada.

Downward trend continues. The decline in the U.S. industry follows a relatively flat performance in third-quarter 1989 and a 4.4% decline in fourth-quarter 1989. The latest drop ends over three years of sometimes spectacular paper industry earnings growth. The last negative year-to-year comparison in U.S. pulp and paper industry earnings took place in first-quarter 1986.

International Paper Co. reported that the most significant price declines were for paper pulps and uncoated printing/writing paper and manufacturing costs rose at some mill locations because of higher wood prices. Net income for Georgia-Pacific Corp. tumbled 34% on a 9% increase in sales. The results were the first to include Great Northern Nekoosa Corp., which G-P acquired in March. G-P said building products profits increased 16% while pulp and paper products dropped 26% due to softer prices. Weyerhaeuser Co. said it expects the rest of 1990 to provide "relatively firm domestic building materials markets and strong export markets for logs and building materials." Discounting in the domestic newsprint market was a factor in the company's 12% drop in first-quarter profits.

Strong log and wood products markets also helped offset weaker pulp and paper profits at Louisiana-Pacific Corp. and Willamette Industries Inc., which posted a 7% rise in profits to $42 million. "The bad news is there will be a severe shortage of logs in the Northwest," said Willamette chief financial officer Jerry A. Parsons. "But the good news is that prices will be forced up, and the value of our timberlands will increase."

Printing/writing weak. Uncoated paper prices have dropped about 20% from a high last spring, but an Apr.

1 price hike created some tightening in the market. Boise Cascade Corp. profits plunged as weak demand for printing/writing paper and newsprint grades coupled with higher prices for logs and woodchips. Bowater Inc. was affected by increased price discounting and higher operating costs associated with startup expenses. Demand for lightweight coated printing paper for magazines and newspaper inserts strengthened for Consolidated Papers Inc., but there has been some weakening in demand for higher-quality, heavyweight coated paper sold in sheets.

Champion International Corp. included price discounting on many of its paper grades plus major outages for expansion projects at several mills as reasons for a 35% decline in first-quarter profits. James River Corp. suffered a 20% drop in profits in its third quarter ending Jan. 28. The company cited lost production caused by last winter's extreme weather and the shutdown of a paper machine at the Fitchburg, Mass., specialty paper mill. Weak prices for copier and office paper hurt Mead Corp.'s earnings at a time when the company is pumping capital into its new Cycolor color imaging business.

Paperboard market weak. Containerboard producer results weakened in the first quarter due to increased price discounting, which spread to corrugated boxes. Union Camp Corp. blamed lower earnings on low prices for its linerboard and uncoated business paper. Stone Container Corp. suffered a 57.6% plunge in first-quarter profits to $36.8 million, which the company said reflected softening prices for newsprint, linerboard, and market pulp. "It is clear that 1990 will be a difficult year," noted chairman and CEO Roger Stone, but he expressed hope that a newsprint price increase would soon take effect. Gaylord Container Corp. reported a net loss of $12.5 million in its second quarter ending Mar. 31., compared with a $6 million profit in 1989. The company cited higher fiber costs, rebuild of a California paper machine, and plant consolidation expenditures. Although Chesapeake Corp.'s income plummeted 65%, the company said second-half earnings would be up, "perhaps even doubling" first-half results.

A reduced tax rate and improved bleached board operation boosted Temple-Inland Inc.'s profits, while a drop in southern pulp prices and the shutdown of a recycled paperboard mill for modernization hampered Federal Paper Board Co. Potlatch Corp. highlighted an increase in tissue product shipments and wood products group success for a 3% rise in income. The company expects to see softening pulp markets and has scheduled maintenance downtime.

Tissue stays strong. Record operating results were reported by Kimberly-Clark Corp. in the first quarter, with net income of $117 million, up 14% from 1989. CEO Darwin E. Smith said manufacturing cost reductions and decreases in marketing expenses in several consumer lines contributed to the improvement. The company was hurt by weak newsprint markets and currency translation losses at its Brazil operations. Production difficulties at the S.D. Warren printing and publishing paper division undermined a strong quarterly performance by Scott Paper Co.'s tissue operations, which saw a 7% increase. Dollar sales established an all-time high. In Europe, Scott said it expects to see cost reductions, especially in the U.K., where it will trim its labor force by as much as 30%. Scott Paper Ltd. was the only Canadian company in the *Pulp & Paper* survey that showed any profit increase from first-quarter 1989, posting a 3% rise in income on a 58% jump in sales. The sales increase reflected its purchase of the White Swan Div. of E.B. Eddy Forest Products last year. The company was

U.S. paper industry results.

	First quarter ($000)			
Companies	**Sales 1990**	**Change 1990/89**	**Earnings 1990[1]**	**Change 1990/89**
Badger Paper Co.	$18,992	−2.4%	$589	−55.6%
Boise Cascade Corp.	1,066,030	−3.0	33,570	−57.1
Bowater Inc.	338,300	−5.7	22,200	−42.9
Champion Intl. Corp.	1,284,406	−0.3	69,774	−38.5
Chesapeake Corp.	203,617	8.3	4,431	−65.5
Consolidated Papers	240,387	−0.8	40,331	−7.1
Federal Paper Board Co.	316,810	11.3	38,786	−17.6
Fort Howard Corp.	266,910	7.3	(29,242)	−18.0
Gaylord Container Corp.	161,500	−9.3	(12,500)	nm
Georgia-Pacific Corp.[2]	2,659,000	8.7	101,000	−34.4
P.H. Glatfelter Co.	158,507	2.0	19,964	−18.1
International Paper Co.	3,200,000	23.1	180,000	−19.3
James River Corp. (1/28)	1,433,073	3.4	46,946	−20.4
Kimberly-Clark Corp.	1,573,300	10.7	117,200	13.7
Longview Fibre Co. (1/31)	166,851	−1.8	12,929	−33.1
Louisiana-Pacific Corp.	474,080	1.5	35,800	−10.3
Mead Corp.	1,141,400	1.1	39,500	−24.9
Mosinee Paper Corp.	56,354	−4.1	2,882	−66.7
Pentair Inc.	286,391	4.2	5,651	−37.3
Pope & Talbot Inc.[2]	149,054	1.9	11,022	16.8
Potlatch Corp.	326,722	9.9	37,007	3.0
Scott Paper Ltd.	1,296,000	2.1	60,100	−30.5
Sonoco Products Co.	403,526	−6.8	24,812	1.0
St. Joe Paper Co.	161,042	0.3	12,410	−26.6
Stone Container Corp.[2]	1,453,700	28.9	36,800	−57.6
Temple-Inland Inc.[2]	591,200	24.9	62,200	14.1
Union Camp Corp.	701,489	−0.7	67,407	−15.4
Wausau Paper Mills (2/28)[2]	80,070	6.0	5,735	−47.3
Westvaco Corp. (1/31)	585,493	5.6	46,438	−4.5
Weyerhaeuser Paper Co.	2,282,503	−1.7	130,058	−12.2
Willamette Industries Inc.	469,889	7.3	42,437	6.6
Total	**$ 23,546,557**	**6.9%**	**$1,266,245**	**−22.6%**

1. Income after taxes, from continuing operations, excluding most significant nonrecurring items in both years where possible. 2. **Fort Howard:** Income includes loss in equity of net loss of unconsolidated units in current and previous quarters. **Georgia-Pacific:** 1990 results include results of Great Northern Nekoosa, acquired on Mar. 8. **Pope & Talbot:** 1990 income includes a gain of $1.9 million on the sale of timberland. **Stone Container:** Sales increase reflects inclusion for a full period of Stone-Consolidated Inc. The year-earlier period included only those results for one month. **Temple-Inland:** 1989 results restated to reflect discontinued operations. 1990 net income includes $1.7-million gain from property and equipment. **Wausau Paper:** 1990 net income includes life insurance proceeds of $1.9 million. ( ) = losses. nm = Not meaningful.

looking forward to lower market pulp prices but remained wary of rising interest rates on the increased debt incurred in the White Swan acquisition.

Canadians in a spiral. The latest plunge in Canadian profits follows a 65% drop in the fourth quarter of last year as the industry continued to reel from newsprint, reduced pulp shipments, and a strong Canadian dollar. The industry also faces difficult labor negotiations involving over 30,000 workers in the eastern provinces and increasingly tougher and more expensive environmental regulations. Poor performance in the groundwood and coated paper division and liquidation of its office products business added to the newsprint woes of Abitibi-Price Inc. The company's first-quarter losses totaled $11 million, down from a $26-million gain in first-quarter 1989. Abitibi said that even though the June 1 newsprint price hike was a step in the right direction, newsprint earnings are expected to remain below acceptable levels until continuing additions to industry capacity are reduced or further machine closures are undertaken. Abitibi's president has speculated some of the company's marginal newsprint mills will eventually be converted to the production of higher value-added products. "Canada has tended to use its trees for the lowest-value product that it can make," said Ronald Oberlander at the annual meeting last month in Toronto, Ont. Abitibi must focus on newsprint mills that will be "long-term players," he said.

Canadian Pacific Forest Products Ltd. likewise took a beating on newsprint, its principal product, and also cited lower market pulp shipments for its 93% dive in profits. However, CEO Cecil Flenniken said he is bullish on the price outlook of northern bleached softwood kraft woodpulp (NBSK), which makes up 90% of the company's pulp production.

Another company anticipating the June 1 increase is MacMillan Bloedel Ltd. The company also cited higher interest rates, contractual cost increases, and production cutbacks as behind a 59% slump in profits on a 3% decrease in sales. Despite a 90% plunge in first-quarter income, Noranda Forest Inc. said the balance of 1990 should show a recovery for newsprint and other paper grades. Noranda completed a cycle of asset renewals begun in the mid-1980s, but markets were delicate for paperboard packaging and market pulp.

"We don't really see any signs of a near-term turnaround," commented Domtar Inc. chairman and CEO James Smith at the company's annual meeting. "I would be less than honest if I said I exude confidence about Domtar's short-term prospects." Sales of Domtar's fine paper increased 13%, but market pulp, newsprint, and groundwood specialty paper declined by 19%. Canfor Corp. blamed a nearly 57% decline on lower pulp shipments and a higher Canadian dollar. Chairman and CEO Peter Bentley said the company curtailed kraft pulp production 15% in the first quarter and expects to maintain or increase downtime in the second quarter, which he said would "probably be the toughest" of the year with improving market conditions likely in the second half. He said production curtailments, which have also been announced by other producers, will allow current prices to hold for NBSK. ■

Canadian paper industry results.

Companies	First quarter (C$000) Sales 1990	Change 1990/89	Earnings 1990[1]	Change 1990/89
Abitibi Price Inc.[2]	$784,800	−3.1%	$(11,300)	−143.0%
Canadian Pacific Forest Products Ltd.	642,100	−9.7	4,800	−92.6
Canfor Corp.[2]	239,700	18.5	13,100	−56.6
Cascades, Inc.	196,352	21.1	3,687	−49.7
Doman[2]	158,938	138.2	4,368	−1.1
Domtar Inc.[2]	611,000	−1.9	20,000	−23.1
Donohue Inc.	158,200	−4.5	10,000	−31.0
Fletcher Challenge Canada Ltd.	282,200	−15.9	15,700	−56.5
MacMillan Bloedel Ltd.	781,300	−3.2	30,000	−59.1
Noranda Forest Inc.	1,210,000	0.7	6,000	−89.7
Perkins Papers Ltd.[2]	18,516	12.5	735	nm
Repap Enterprises Corp.	293,500	11.1	7,000	−71.7
Rolland Inc.	108,800	−6.6	174	−80.8
Scott Paper Ltd.[2]	130,017	57.6	4,370	3.0
Tembec Inc. (2nd Q)	55,699	−11.3	4,712	−42.3
Weldwood of Canada Ltd.	160,000	−17.7	6,300	−61.1
West Fraser Timber	140,600	17.3	4,900	−16.9
Total	**$5,971,922**	**0.5%**	**$124,546**	**−69.0%**

1. Income after taxes, from continuing operations, excluding most significant nonrecurring items in both years. 2. **Abitibi-Price Inc.:** Current quarter includes a pretax charge of $13.7 million mostly from the write-off of the Jaffe office products business, which is being liquidated. **Canfor Corp.:** 1990 sales increase reflects the mid-1989 acquisition of Balfour Forest Products Inc. **Doman Industries:** Results include those of Western Forest Products Ltd. and Western Pulp Ltd. Partnership, both acquired in July 1989. **Domtar Inc.:** Income from discontinued operations includes an after-tax gain of $23 million from the sale of assets of its salt unit in March. **Perkins Papers Ltd.:** Year-earlier results reflected mechanical problems at the Candiac, Que., mill. **Scott Paper Ltd.:** Sales increase reflects purchase of the White Swan Div. of E. B. Eddy Forest Products, which was not reflected in year-earlier results. ( ) = losses. nm=Not meaningful.

MARKET PULP

Consolidated studies further pulp expansion

Consolidated Papers Inc. is conducting a preliminary feasibility study of another major pulp mill expansion to reduce outside chemical market pulp requirements, according to its annual report. Historically, the company has tried to produce about 75% of its chemical pulp internally. Chemical market pulp requirements, however, are expected to increase sharply following the startup of two new coated paper machines in late 1990 and late 1991.

To achieve the goal of expanding the Kraft Div.'s capacity to 1,000 tpd, an additional $10 million will be spent this year to remove bottlenecks in hardwood bleaching, chip feed to the pulp digester, and pulp wet lapping. Last year, the Kraft Div. produced 257,780 tons, or 66% of the chemical pulp required for Consolidated's four paper mills, a 13% increase over the previous year. ■

Supply and demand of ONP

Demand for products made from old newspapers (ONP) has grown steadily over the past ten years. However, can the growth in demand for ONP match the current rapid growth in ONP collection?

ONP is top on the list of recycling collection materials for municipalities. This highly recyclable material presently makes up 7% of landfills and is easily segregated from other household solid waste. However, the recent increase in collection has caused a glut of ONP in some places, bringing a steady decline in market prices.

Newsprint consumption and, therefore, the supply of ONP has risen steadily over the past decade at a rate of 2.4% annually. In 1988, 13.6 million tons of newsprint were consumed in the U.S., of which 35% was recycled. This compares with approximately 11.2 million tons of newsprint consumed in 1979, of which only 28% was recycled.

DEMAND. The end users for ONP in the manufacture of paper and paperboard products include producers of newsprint, tissues and towels, paperboard boxes, construction paper, and board. Other uses include molded pulp products (egg cartons), cellulose insulation, animal bedding, and mulch products. ONP exports have been used primarily in the manufacture of newsprint by overseas producers and have been growing substantially over the past ten years. As the table illustrates, total ONP consumption has increased since 1979.

Domestic demand for ONP has grown most rapidly and consistently in newsprint (109%) and tissue and towel manufacture (73%), although the magnitude of ONP use by the tissue and towel sector is considerably less than the newsprint sector.

Once the leader in recycled ONP use, recycled paperboard manufacture has exhibited little variation in ONP utilization over the past decade. This is due largely to the emergence of two competing grades of paperboard—coated bleached and unbleached kraft (sulfate) board. Unbleached kraft board is manufactured solely from virgin fibers. Both products have eroded recycled paperboard's market share. Although there may be opportunities to increase demand for recycled board in the future, the effect on ONP consumption would be marginal since much of the wastepaper used in recycled board is old corrugated containers. Most other end-use applications have declined in ONP utilization.

It must be noted that of the 16.9 million tons of newsprint produced in the U.S. and Canada, 90% (15.2 million tons) was composed of virgin fiber. The remaining 1.7 million tons (10%) was composed of ONP with some additions of old magazines.

The information and table in this column are excerpts from the Final Report of the New York State Newspaper Recycling Task Force, prepared by the N.Y. Newspaper Publishers Assn., N.Y. State Dept. of Economic Development, and N.Y. State Dept. of Environmental Conservation.

—Andy Harrison

Demand for U.S. ONP by end-use application and export, 1979-88.

	Short tons (000)				
End use	**1979**	**1982**	**1985**	**1988**	**% increase**
Newsprint	679	1,066	1,312	1,420	109
Packaging	9	8	5	7	−22
Tissue/towel	124	136	182	214	73
Recycled paperboard	1,344	1,257	1,164	1,307	−3
Construction paper and board	324	206	212	279	−13
Other	350	300	350	500	43
Exports (minus imports)	332	442	640	1,039	213
Total	**3,162**	**3,415**	**3,885**	**4,765**	**51**

Source: American Paper Institute.

Containerboard Markets May Become More Competitive During the 1990s

Demand is forecast to remain healthy, particularly for specialty and graphic grades, but supply is expected to more than keep pace

P&P STAFF REPORT

The containerboard and corrugated box market has closely tracked the economy and is one of the largest segments of the U.S. paper industry. But this segment of the industry will face major challenges through the next decade. New technology at box plants (such as continuous corrugators) and at mills (such as multi-ply forming and high-pressure presses) is fast changing the industry. A major challenge for both box and board producers will be how to generate a respectable profit in markets that are increasingly competitive, based more and more on specialty boxes printed with two or more colors than commodity-oriented regular slotted containers (RSC) brown boxes.

Recently, *Pulp & Paper's Forecaster* published a two-part report on corrugated box and containerboard markets through the year 2000. These reports analyze the long-term trends for both corrugated box and containerboard and the impact of growing demands for specialty linerboards, such as preprinted liners, mottled, and white-top.

To examine major findings from these studies, *P&P* recently interviewed Coleman Rowland of Lakeway Research, author of "Growing Linerboard Specialties," and Ken Lowe of Forecaster Services, who authored "Containerboard and Corrugated Box: Market Outlook to the 21st Century."

P&P: *Is the current slowdown in corrugated box demand a long-term trend indicating a maturing market?*

Lowe: No. Corrugated box demand as measured by square footage normally tracks real growth in GNP and industrial production, and this trend is forecast to continue into the next decade. Over the last ten years, corrugated box demand on a square footage basis grew at a 2.8% annual rate, compared with a 2.8% annual rate for real GNP and 3.3% for industrial production.

True, box shipments slowed in 1989, growing by only 1.2%, and we expect growth to remain lower than normal through 1990. However, as the U.S. economy picks up strength in late 1990 and into 1991, box demand will again begin to closely track real economic growth. For the decade of the 1990s, box shipments are forecast to grow by 2.6% annually. When translated into billion ft^2 of box shipments, the growth over the next decade will be slightly larger than in the 1980s.

P&P: *But haven't changing end use markets had a major impact on box demand?*

Lowe: Yes, many of the leading outlets for corrugated boxes in the early 1980s and 1970s are now slow-growth or declining markets, such as glass containers, canned foods, beverages, and most durable good end uses. The durable goods market has been hurt by high levels of imports and slow growth in U.S. exports.

To some extent, competitive forms of packaging have also cut down on the amount of corrugated containers used in certain end uses, such as shrink wrapping, plastic cushioning material, compression bundling, as well as wrapping. The best growth areas of the last decade were in the fresh fruit and vegetable and dairy products food sectors, in the paper industry in cut-size and converted business papers, and in high-tech electronic areas. These trends are expected to continue into the future, along with a minor rebound in shipments of durable goods.

There are also growing markets in Mexico as a result of the establishment of Mexican assembly plants just across the U.S. border. These plants allow U.S. box makers to ship in boxes or combined boards. Canadian markets will also become more accessible as the free-trade agreement is fully implemented.

P&P: *You refer in your report to the "visual appeal grades" of linerboard. What specific grades do you include in this category?*

Rowland: Five grades of board are included. Mottled white liner, which dominates the category in terms of size at over 1 million tons, is expected to grow at a rate half again as fast as the commodity grades of linerboard. The next largest grades, full-bleached liner and SBS [solid bleached sulfate] boxboard, are each expected to lose ground, while the fastest growing categories are expected to be coated kraft boxboard and white-top liner-

board. Overall, we expect the growth of these five grades of white linerboard to grow at more than double the rate of the linerboard industry as a whole.

P&P: *What factors are driving the growth of visual appeal linerboard grades at rates faster than those of commodity linerboard?*

Rowland: Several factors are at work. Self-service merchandising is not a new trend but one that is still being felt in the packaging industry. New consumer products, such as wine coolers, create periodic surges in demand for the white grades of linerboard. The standards for packaging graphics have been inching upward for decades, and that trend still keeps pressure on converters to upgrade printing materials and substrates. The motor oil 12 one-quart shipper at one time epitomized the commodity end of the box business. Now if you visit the automotive department of a K-Mart store, you will find that the minimum graphics for motor oil shippers are two colors on mottled white, with several companies using preprinted liner.

High-end graphics are more available now. In the early 1980s, only a handful of companies offered process flexographic printing or preprinted liner. Now there is overcapacity in the North American preprint industry with 20 presses having a combined capacity of some 10 billion ft² annually.

P&P: *What's the future of preprinting liner?*

Rowland: Good, but the market has grown slower than first forecast, when this method was introduced to the U.S. in the early 1980s. Today, 18 producers make preprint linerboard using 20 multi-station presses installed in the U.S. and Canada. Capacity, however, is far in excess of demand. The total tonnage of graphic board used in 1989 was estimated between 63,000 and 100,000 tons. Many believe that the key to opening new markets for preprint linerboard will be the availability of less expensive substrates than those currently within reach. The greater accessibility of coated unbleached kraft board and white-top linerboard in the early 1990s could provide the impetus for much greater use of preprinting.

P&P: *Isn't white-top linerboard a new grade for U.S. producers?*

Rowland: Yes. In the past, most U.S. box needs were supplied by Canadian mills. Now, two U.S. companies produce this grade, and more are planning to offer it. White top offers essentially the same advantages as bleached liner, as far as whiteness and printability are concerned, but it is also stronger and substantially lower in cost. White-top liner is expected to offer competition not only to bleached liner but also to mottled white since it makes available an easy way to upgrade from mottled. U.S. white-top liner production is forecast to increase from about 10,000 tpy in 1988 to 200,000 tpy by 1992.

P&P: *Just what is "high-performance containerboard?"*

Rowland: Thus far, no industry standards exist, but high-performance containerboard (HPC) is defined in our report as those grades designed to produce for a given basis weight higher levels of stacking strength than would be expected from standard containerboard grades. We defined HPC in our report as grades offering a test result of at least 2 lb of ring crush/lb of basis weight. For example, 42 lb/1,000 ft² linerboard would be needed to produce at least 84 lb of ring crush in order to qualify as HPC by this definition.

The term HPC is used in the industry to describe a wide variety of products. Some suppliers are offering average ring crush specifications, while others specify a minimum ring crush. Some suppliers allow the basis weight to float, while others guarantee both ring crush and basis weight. A few second-generation grades of HPC are now addressing not only ring crush but also the printability of the board and its consistency across the sheet in terms of caliper, basis weight, and moisture. These grades are aimed at the high-speed corrugators and high-end printing operations.

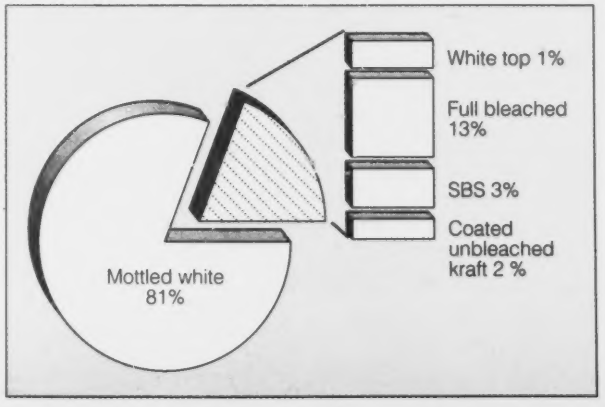
P&P: *Why are linerboard producers interested in making HPC?*

Rowland: Many linerboard producers have found that high-load presses can be easily justified by enhancing production rates and maintaining strength specifications when using lower-cost raw materials. A few companies choose to upgrade the strength, surface, and consistency of their linerboard and charge a premium price for the improved sheet. As one HPC producer put it, his company sells all of the HPC that the market will absorb and then takes the benefit of its high-load presses in terms of lower cost for the balance of its capacity.

TABLE 1: **Forecast U.S. containerboard production.**

	1980	1990	2000
Total	20,445	26,436	34,414
Linerboard	14,675	18,888	24,666
Kraft	14,231	18,441	23,274
Recycled	444	447	1,392
Corrugating medium	5,770	7,548	9,748
Semichemical	4,723	5,814	7,087
Recycled	1,047	1,734	2,661

FIGURE 1: **Estimated U.S. white paperboard for corrugated boxes, 1988.**



***P&P:** Is a high-load press required to make HPC?*

Rowland: No, it is probably the easiest way but certainly not the only way. Some companies upgrade their raw materials, and others change their existing machine parameters, such as rush-drag ratio. Producers of HPC tend to have their own proprietary recipes for achieving improved ring crush results.

***P&P:** Is HPC of interest only to box users who need additional stacking strength?*

Rowland: If a box user is having trouble with loads collapsing in the warehouse, HPC is certainly an alternative that could be looked at before the user upgrades the basis weight of the containerboard, adds inner packaging, or invests in rack systems. It didn't take the more aggressive box salesman long to find that HPC might be of interest to customers who had no stacking problem at all. By converting to HPC liners, a box user whose shipments are unregulated can downgrade the basis weight of the box liners to a degree that more than offsets the higher price/ton of the HPC linerboard, thereby significantly reducing the material cost of the box.

These cost savings may be split between the box plant and the box user or just passed on to the user. In either case, the box user has a lighter, cheaper box that performs as well as the old box. Assuming the box plant upgrades its margin by using the new specifications, as it might be expected to do, everyone (mill, box maker, and box user) benefits from the switch to HPC.

***P&P:** Isn't the rapid development in world trade going to require more kraft linerboard exports from producing countries, such as the U.S.?*

Lowe: Yes, but the level of increase will be smaller than one would expect. U.S. producers will continue to be the dominant supplier of kraft linerboard to world markets since few other countries have the softwood resources and the low cost position of U.S. mills, particularly in the South. But outside of the U.S., the dominant linerboard is recycled board or a board containing high percentages of recycled fiber, such as Japanese K-liner. Kraft linerboard accounts for 42% of total world containerboard consumption, compared with 65% in North America. By the year 2000, kraft linerboard is forecast to account for about 38% of total world demand. Slower growth for kraft liner and more competition from nontraditional suppliers is going to reduce the U.S. share of exports. But even in spite of more competitive markets, U.S. exports are forecast to increase by close to 550,000 tons from 1990 to the year 2000.

***P&P:** What's the chance of more greenfield linerboard and medium mills being built in North America?*

Lowe: Not good. During the 1980s, only one greenfield kraft linerboard mill and one recycled linerboard mill were built. At current containerboard prices, the building of greenfield mills for either linerboard or corrugating medium cannot normally be financially justified, especially when compared with incremental expansions at existing mills. The development of new forming and pressing technology, plus the use of higher levels of corrugated container wastes, have permitted existing kraft mills and corrugating mills to expand at costs about 50% lower than those required to add capacity via greenfield mills. To justify a new greenfield kraft liner mill, linerboard prices would have to average at least $75/ton above those currently forecast over the next decade, a price level that is unlikely to be achieved.

***P&P:** But aren't greenfield mills for recycled linerboard justified?*

Lowe: When compared with building greenfield kraft mills, a 600-tpd recycled linerboard mill costs about 50% less to build, but the total manufacturing costs still average only about 10% lower than those of a new world-class kraft liner mill. However, what has to be remembered in evaluating a recycled project is that the recycled project won't be competing with a greenfield kraft mill but with existing kraft mills that have substantially lower fixed cost structures. Further, the profitability of a recycled mill is at the mercy of wastepaper price trends. When OCC [old corrugated containers] sells at prices below about $60/ton f.o.b. the manufacturing costs at a new recycled mill are probably close to those of existing kraft linerboard mills. But at much above this level, recycled mills have higher costs.

***P&P:** Based on announced projects, is a rash of new recycled linerboard mills going to be built?*

Lowe: Yes, as much as a 2 million tons of new recycled linerboard and corrugating medium capacity may come online in the next five years, based on announced projects. If all of these projects and more are undertaken, a serious oversupply of containerboard is going to occur into the mid-1990s. Since such an oversupply will depress prices, many of these proposals will never be economically attractive. Obviously, a good chunk of new capacity is going to come from recycled grades, and there are circumstances justifying the building of new recycled linerboard mills. For example, if a company can secure a long-term, low-cost supply of corrugated wastes, the economics are favorable. But we continue to believe the best use of OCC waste is as a supplemental fiber furnish in kraft liner at existing mills. In the U.S., the average unbleached kraft paperboard contains only 10% recycled fiber. Since some grades now contain more than 25% recycled fiber, there is plenty of room to use more recycled fiber in kraft linerboard grades. ■

More information on containerboard

Interested readers can obtain more information on these reports, including a summary of major findings, by writing to *The Forecaster*, Linerboard Reports, 500 Howard Street, San Francisco, Calif. 94105, or by calling Ola Jane Gow, Forecaster Services, Miller Freeman Publications, (415) 995-2450.

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